

Meningococcal Disease

What Is Meningococcal Disease?

Meningococcal disease is a rare but potentially fatal bacterial infection. Invasive meningococcal infections are caused by the bacterium *Neisseria meningitidis*, (also known as meningococcus), a gram negative diplococcus. There are 13 serogroups of *N. meningitidis* (A, B, C, D, 29E, H, I, K, L, W-135, X, Y, and Z). Strains belonging to groups A, B, C, Y, and W-135 are implicated most frequently in systemic disease (Figures 1 and 2). The disease presents as either meningococcal meningitis, which is an inflammation of the membranes surrounding the brain and spinal cord, or meningococemia, which is the presence of the bacteria in the blood.

Meningococcal disease can quickly lead to death, sometimes within 48-72 hours after onset of symptoms. Of those who survive, 10 percent have severe aftereffects of the disease, including mental retardation, hearing loss, and loss of limbs. Meningococcal disease strikes about 3,000 Americans each year and is responsible for approximately 300 deaths annually. It is estimated that 100 to 125 cases of meningococcal disease occur annually on college campuses, and 5 to 15 students die as a result.

Figure 1

Meningococcal Serogroups Reported in Indiana for 2002 and 2003

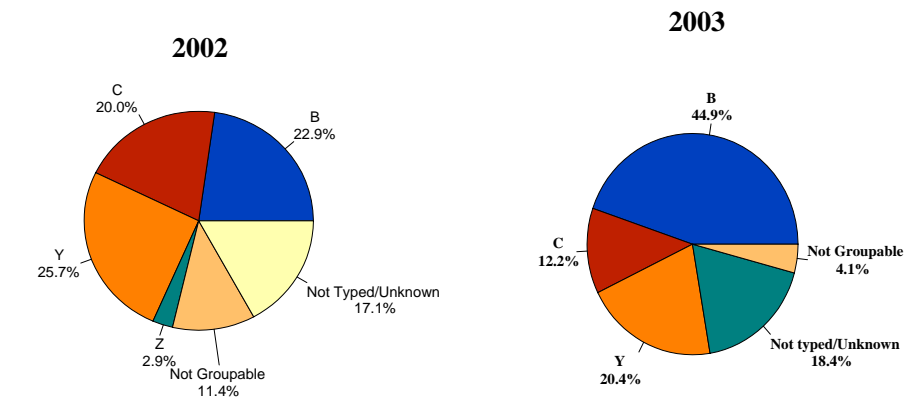
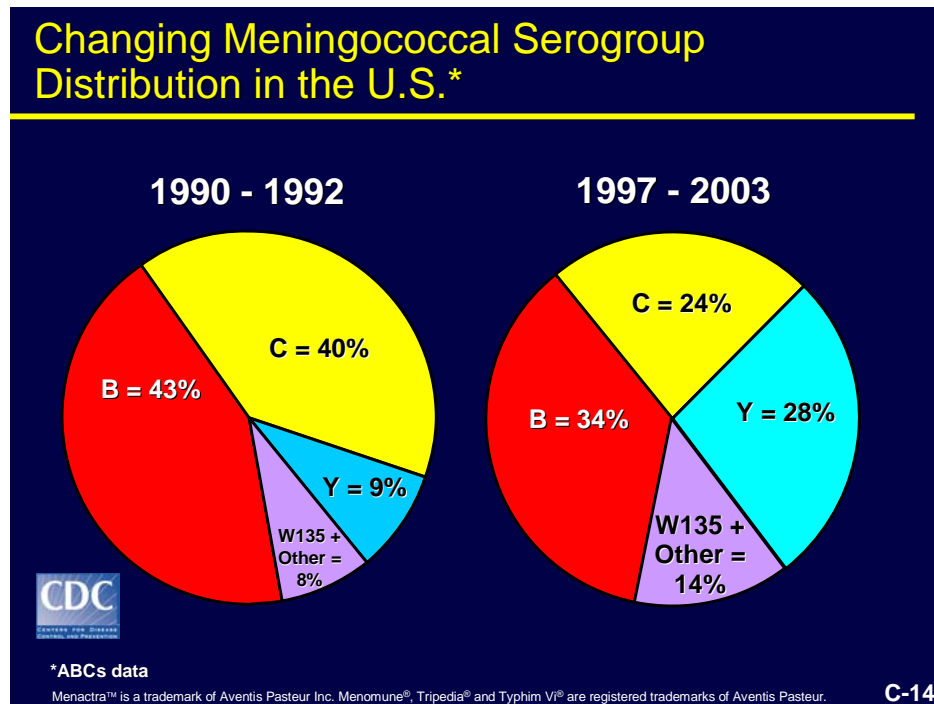


Figure 2



How Is Meningococcal Disease Transmitted?

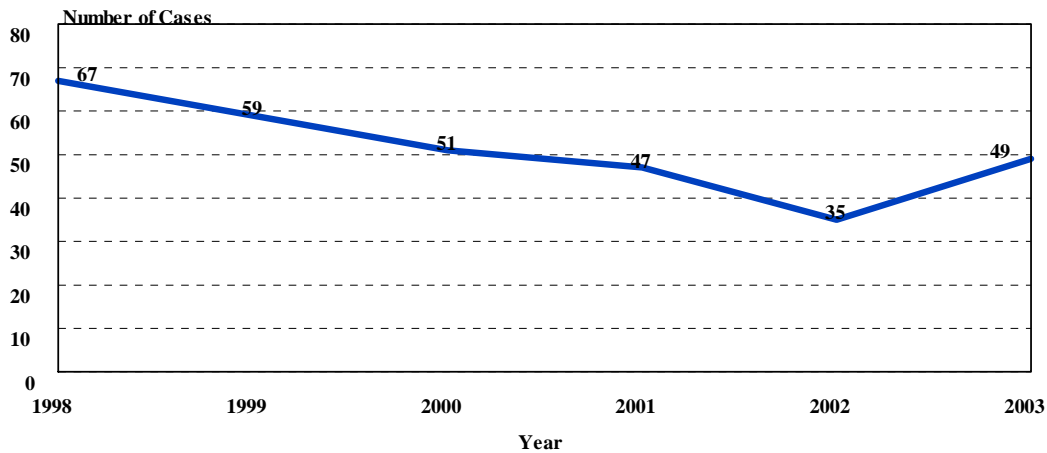
Meningococcal bacteria are transmitted through the air via droplets of respiratory secretions and by direct contact with an infected person's nasal or throat secretions. Direct contact is defined as oral contact with shared items, such as cigarettes or drinking glasses, or through intimate contact, such as kissing. Approximately 10 percent of people carry the bacteria in their throats without any symptoms. Certain social behaviors, such as exposure to passive and active smoking, bar patronage, and excessive alcohol consumption, may put college students at increased risk for invasive disease. Patients with respiratory infections, compromised immunity, those in close contact with a known case, and travelers to endemic areas of the world are also at increased risk.

Meningococcal Disease Activity in Indiana

In 2003, 49 confirmed cases of invasive meningococcal disease were reported in Indiana, with 5 deaths (10.2 percent). Of these five deaths, ages ranged from 2-71 years, four were male and one was female. In 2002, 35 cases and 2 deaths (5.7 percent) were reported. The 35 cases reported in 2002 represent the lowest reported number of cases during 1998-2003 (Figure 3).

Figure 3

Meningococcal Cases by Year, 1998-2003



Meningococcal disease most often occurs in infants, children and young adults (Figure 4). The infant case rate increased from 8.2 cases per 100,000 population in 2002 to 11.75 cases per 100,000 in 2003. Similarly, the case rate for those in the age group 10-19 also increased from 0.56 cases per 100,000 in 2002 to 1.44 cases per 100,000 in 2003. In 2003, approximately 26 percent of the total reported cases occurred in those 10-19 years of age. Although the disease incidence occurs most often in infants and children, case fatalities occur most commonly in young adults (Figure 5).

Figure 4

Meningococcal Cases by Age Group, Indiana, 2002 - 2003

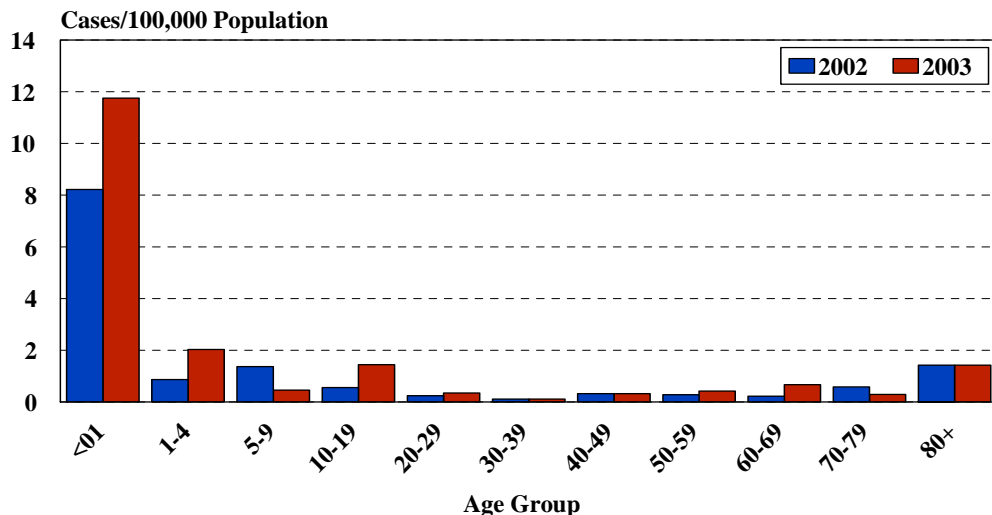
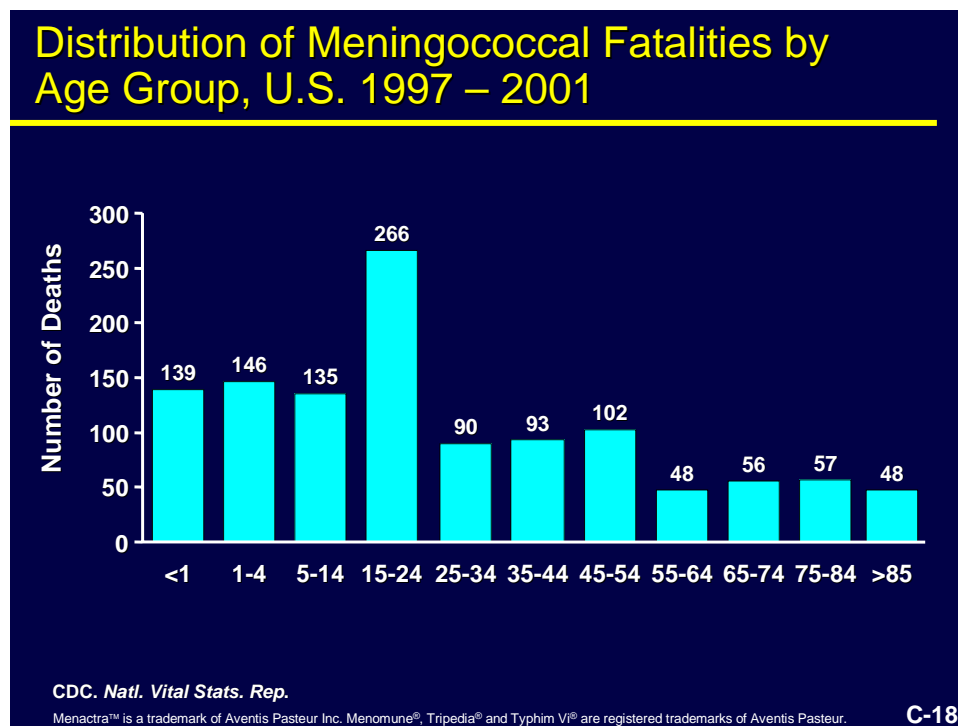


Figure 5



Vaccine Recommendations

The Advisory Committee on Immunization Practices (ACIP) to the Centers for Disease Control and Prevention (CDC) has recommended that children 11-12 years of age, teens entering high school, and college freshmen living in dormitories receive a newly licensed meningococcal vaccine (Menactra™) manufactured by Sanofi Pasteur. The U.S. Food and Drug Administration (FDA) licensed this new polysaccharide-protein conjugate vaccine on January 14, 2005, for use in people 11-55 years of age. The ACIP currently recommends a routine doctor's visit for children 11-12 years of age, at which time they may receive a tetanus-diphtheria booster dose. These children may also receive the meningococcal vaccine during this routine visit. In order to foster the most rapid reduction of meningococcal disease following this recommendation, ACIP also recommended that teens entering high school who have not previously received MCV4 should also be vaccinated. College freshmen who live in dormitories are at higher risk of meningococcal disease than other college students and should also be vaccinated. Meningococcal vaccine may also be provided to college students who do not live in dormitories and adolescents who want to reduce their risk for acquiring meningococcal disease. The vaccine is highly effective; however, it does not protect people against disease caused by the type B meningococcal strain, which causes one third of meningococcal cases (Figure 1). More than half of the cases among infants less than one year of age are also caused by type B, for which no vaccine is licensed or available in the United States.

Source: http://www.cdc.gov/nip/vaccine/meningitis/mcv4/mcv4_acip.htm

Vaccines Compared

Meningococcal Conjugate Vaccine (MCV4), which is Menactra™

This vaccine is licensed in the U.S. for persons 11-55 years of age. It is likely that this vaccine or a similar vaccine will be licensed for younger age groups in the future. This vaccine is recommended for:

- Young adolescents at the preadolescent doctor's visit (11-12 years old)

- Adolescents at high school entry (about 15 years old)
- Groups that have a higher risk of meningococcal disease, such as college freshmen living in dormitories

The most common adverse reactions to Menactra™ vaccine may include pain, redness, and indurations at the site of injection, headache, fatigue and malaise. Menactra™ vaccine is contraindicated in persons with known hypersensitivity to any component of the vaccine or to latex, which is used in the vial stopper.

Meningococcal Polysaccharide Vaccine (MPSV4), which is Menomune™

This vaccine is recommended for people 2-10 years of age and over 55 years of age who have an increased risk of disease due to certain medical conditions. People at high risk need revaccination every three-five years.

Further information comparing Menomune™ and Menactra™ can be found at the following website:

http://www.fda.gov/ohrms/dockets/ac/04/slides/4072S1_3.ppt

Conclusions

This new legislation ensures that information concerning meningococcal disease and related vaccines will be provided to parents, guardians and students at the beginning of each school year. Providing this information fosters an informed decision regarding vaccination of the student. Parents and guardians are encouraged to consult with their health care provider if they have additional concerns.

For questions about meningococcal disease or vaccines to prevent meningococcal disease, contact your physician or your local health department.

Suggested Links

http://www.cdc.gov/ncidod/dbmd/diseaseinfo/meningococcal_g.htm

<http://www.in.gov/isdh/healthinfo/meningococcal%20disease.htm>

http://www.in.gov/isdh/publications/2002communicable_disease_ref_guide/meningococcal.htm

http://www.in.gov/isdh/publications/2002communicable_disease_ref_guide/meningococcal_letter.htm

How Can You Prevent and Control Meningococcal Disease?

Data from the CDC indicate that college freshmen, particularly those who live in dormitories, are at modestly increased risk for acquiring meningococcal disease relative to other persons their age. Vaccination with the currently available vaccine, Menactra™, will decrease the risk for meningococcal disease among such persons.

Other preventive measures include:

- practice good hand washing
- avoid sharing beverage containers, cigarettes, lipstick, or eating utensils
- avoid smoking and smoky environments
- get plenty of sleep and exercise regularly
- eat a balanced diet and avoid excessive alcohol consumption

MCV4 (Menactra™) vaccine has been recommended for use by the ACIP and placed on the schedule of vaccines for the Vaccines For Children (VFC) Program. The Indiana Immunization Program has not received funding to purchase MCV4 at this time. We anticipate that the VFC Program will be able to supply this vaccine in early 2006.

Until then, Medicaid eligible children may receive the vaccine. Medicaid providers may purchase the vaccine and then bill Medicaid. To obtain the proper billing code and reimbursement rate, providers should contact EDS at 800.577.1278 or 317.655.3240. VFC providers should read the weekly *Vaccine E-Letter* for future information on Menactra™ availability.